

Dynamics Explorer Now Operational

The two Dynamics Explorer satellites, launched from the Western Test Range at Vandenberg Air Force Base in California into separate polar orbits, are now fully operational (see *EOS*, 66, p. 633, August 25). Although the spacecraft did not achieve the planned orbit because of a short burn of the second stage in the Delta launch vehicle, the scientific instruments aboard both satellites are operating. NASA expects that all major scientific objectives of the mission will be achieved.

The lower orbiting DE-2 obtained science data for 12 days after its instruments became operational in late August. Science operations were resumed September 4 after the spacecraft had been repositioned 180° to permit proper instrument cooling. This maneuver must be performed every 6 months, owing to the spacecraft's attitudinal relationship to the sun.

The higher orbiting DE-1 had all instruments activated over the last weekend in August and reeled out 63 of the 100 m (200 of 328 ft) of the long wire antennas on board. The 6-m (19 ft) Astromast booms were also erected.

In the process of activating the antennas and booms, the spacecraft's spin rate dropped from 84 to 9 rpm. Magnetic torquing will be used to increase the spin rate to the desired 16 rpm, scientists said, at which time the wire antennas will be extended.

The satellites are in coplanar orbits and are designed to provide an understanding of the processes by which energy from the sun, in the form of light waves and matter, flows through interplanetary space, enters the region around the earth controlled by the magnetic forces from the earth's magnetic field (magnetosphere), and eventually is deposited in the earth's atmosphere to produce the aurora (northern lights), affect radio transmission, and perhaps influence basic weather patterns. (Source: NASA.)—PMB

Tracking Down Geothermal Waters

Two geochemists say that measuring gas ratios in geothermal waters that have surfaced from deep within the earth can help pinpoint the hottest spot in a geothermal reservoir. The technique avoids inserting long thermometers or drilling deep holes into the earth.

When water falls as rain or flows in rivers and lakes, it picks up from the atmosphere such gases as nitrogen, oxygen, and argon, explain David Norman, assistant geophysicist professor at the New Mexico Institute of Mining and Technology, and Carl Bernhardi, a graduate student. As the water sinks into the earth and heats up, most of the atmospheric gases bubble off. Then, the water absorbs other gases such as helium and carbon dioxide from the surrounding rocks and soil. When this hot water rises to the surface by convection, Norman told *EOS*, it cools rapidly but retains its underground gases. By calculating the ratios of carbon dioxide to methane in the water that has risen to the surface, the temperature of the water when it was deep within the earth can be estimated, the geochemists say. This new method could help tap with precision economic geothermal reservoirs.

Finding a reservoir for exploration is not sufficient, say Norman and Bernhardi, because hot geothermal waters can flow laterally within rock fractures for kilometers before surfacing. Drilling for geothermal waters is expensive; the technique using gas ratios could reduce drilling errors, they say.

Norman and Bernhardi, while working on a broader study of gases related to geothermal waters, found that by measuring several ratios, they could locate precisely the hottest geothermal spot in a given region. Their work was conducted partly in the Lightning Dock area of southwest New Mexico, site of previous geothermal work. The gas ratio technique agrees with previous geothermal exploration

studies on the location of the hottest geothermal spots, they report.

The gas ratios used by the New Mexico team are carbon dioxide to methane, helium to nitrogen, helium to argon, carbon dioxide to nitrogen, and carbon dioxide to argon. The total percentage of carbon dioxide in the gases is also a clue.

Geophysicists

James F. Fitzgerald, Jr., 32, was awarded posthumously his doctoral degree at the University of Idaho commencement earlier this year. He joined AGU in 1969 as a student member of the Volcanology, Geochemistry, and Petrology section. He was killed in the May 18, 1980, eruption of Mount St. Helens.

David W. Stearns has been appointed interim dean of the University of Oklahoma's new College of Geosciences, a major component of the university's proposed \$30 million Energy Center. Before becoming the university's first non-professor of energy resources in September 1980, Stearns was professor of geology at Texas A&M's Center for Tectonophysics.

Murray B. McPherson, 61, died on August 20. A member of the Hydrology section, he joined AGU in 1975. He was a former chairman of the AGU Committee on Urban Hydrology.

Charles G. Morgan, 74, died on August 8, 1980. He joined AGU in 1946 as a member of the Seismology section.

James A. Peoples, Jr., 70, a former AGU Fellow, died on December 12, 1980. He was editor of the *Journal of Geophysical Research* from January 1959 until December 1966. He joined AGU in 1939.

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For special rates, query Robin Little,
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POSITIONS AVAILABLE

Physical/Coastal Oceanographer. The Center for Coastal Studies, Scripps Institution of Oceanography, has an opening for a physical, coastal oceanographer to conduct research in an ongoing program of innovative sediment management technology with emphasis on sediment response to the forcing functions of waves, winds and currents. The incumbent will select and publish on research projects into fundamental physics of coastal and harbor sedimentation and advance alternatives to current coastal engineering practices.

Appointments are for 2 or 3 years (renewable) at the postgraduate research or assistant research level. Qualifications for postgraduate research level are PhD or equivalent in physical oceanography/coastal processes and/or applied physics/mechanics with emphasis on granular/fluid mechanics. Appointment at the assistant research level requires the above qualifications and a demonstrated publication record. Salary from \$16,38 to \$25,200 commensurate with qualifications. Submit letter of interest including resume and at least three names of references before 1 December 1981 to: Dr. D. L. Inman, Director, Center for Coastal Studies, Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093. Request position profile at the same address.

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Sedimentologist. Applications are invited for a postgraduate research position in sedimentology at the Scripps Institution of Oceanography. Applicants specializing in all areas of sedimentology will be considered, although preference will be given to recent graduates interested in seismic wave propagation, particularly as applied to the oceanic environment and digital signal processing. The position has a duration of one year, with the possibility of extension to two years, and an annual stipend of \$16,860. Please send resume and three references to either Dr. Thomas H. Jordan or Dr. John Orcutt, A-015, Geological Research Division, Scripps Institution of Oceanography, La Jolla, CA 92093, prior to 1 December 1981.

Scripps Institution of Oceanography, University of California, San Diego is an affirmative action/equal opportunity employer.

Faculty Positions. Arizona State University, Department of Geology. Applications are invited for two tenure-track faculty positions, one at the assistant professor level and one at the associate level, beginning in August of 1982. One of these positions requires a candidate with interests in applying modern solid state science to geological phenomena. The selected candidate should develop an active research program and may use the extensive opportunities offered by the Facility for High Resolution Electron Microscopy at ASU. Teaching duties will include undergraduate mineralogy. Candidates for the other position should complement and extend existing strengths in the department. Possible areas include low temperature geochemistry, heavy isotope geochemistry, solid earth seismology, tectonophysics, and related fields. The ability to use modern techniques in both field and laboratory studies and to integrate diverse approaches is highly desirable. Please send a detailed statement of research and teaching interests and a resume with names of four references to David Kinnear, Department of Geology, Arizona State University, Tempe, AZ 85287, by January 15, 1982.

Arizona State University is an equal opportunity/affirmative action employer.

Staff Scientists/Biogenic Programmers. Research & Data Systems, Inc. has openings available for Staff Scientists and Scientific Programmers to work in areas involved in the processing and application of data from satellite based remote sensing systems. Particular needs involve the study of atmospheric dynamics specifically as it relates to the stratosphere/troposphere interface, stratospheric composition and dynamics and dynamic feedback mechanisms. Other needs exist in the area of orbit/attitude computation, objective analysis and radiative transfer. Successful candidates will have an advanced degree in meteorology, physics, astronomy or mathematics with a strong computer software background particularly on IBM equipment. Send resume in confidence to: Research & Data Systems, Inc., 9420 Annapolis Road, Lanham, Maryland 20708, Telephone: (301) 459-0001.

Director, Geodetic Survey, NOAA. The National Oceanic and Atmospheric Administration (NOAA) announces a Senior Executive Service Vacancy for the position of Director, Geodetic Research and Development Laboratory (GRDL) in the National Geodetic Survey, a component of the National Ocean Survey. The duty location is Rockville, Maryland. The salary range is \$47,889-\$50,112.50 per annum. Duties include providing technical and administrative supervision over employees and activities of GRDL; advising officials on the state of scientific knowledge in geodesy and making recommendations for research and development; exercising scientific and technical knowledge of contributing publications to professional journals and making presentations at national and international meetings; and advising and consulting scientists and executives in improvement of geodesy and related fields. Experience in management of scientific programs, geodesy, and solid earth sciences is required. Apply to: NOAA/NOS Executive Boulevard, Rockville, Maryland 20852. Attn: M/S PER16/STR. NOAA is an equal opportunity/affirmative action employer.

Visitor Appointments/NCAR. Visitor Appointments at the High Altitude Observatory are available for one year periods to carry out research in solar physics, solar-lunar-solar physics, and related subjects. Applicants should provide a curriculum vitae including education, work experience, publications, the names of three scientists familiar with their work, and a statement of their research plans. Applications must be received by January 1982, and they should be sent to: Visitor Committee, High Altitude Observatory, National Center for Atmospheric Research (NCAR), P.O. Box 3000, Boulder, Colorado 80307. NCAR is an equal opportunity/affirmative action employer.

University of Hawaii Faculty Positions. The Department of Geology and Geophysics and the Hawaii Institute of Geophysics of the University of Hawaii are seeking applicants for two tenure-track positions beginning available January 1, 1982. Applicants should have specialization in (1) marine geophysics with emphasis in one or more of the fields: marine seismology, magnetics and gravity; or (2) marine paleogeography/geomorphology. One of these positions will be filled at the rank of full professor, the other at assistant or associate level.

Applicants should have demonstrated ability to conduct and promote marine research commensurate with the level of the application. Ability to teach at all levels is expected. The position will be joint, on an 8-1-month basis with the Department, and the Institute will involve both teaching and research responsibilities. Apply with resume, experience, education, and names of 3 referees to: Thomas W. Broadhead, Search Committee, Department of Geology and Geophysics, University of Hawaii, Honolulu, Hawaii 96822.

UTK is an EEO/Title IX/Section 504 employer.

University of Tennessee, Knoxville/Faculty Positions. The Department of Geological Sciences (Main Campus of the UT System) invites applications for two or three tenure track teaching/research positions effective September 1, 1982.

The appointments will be at the assistant or associate professor level in:

1. Sedimentology or Low-Temperature Geochronology

2. Metamorphic Petrology or Mineralogy.

The Ph.D. is required. Duties will include pursuit of an active research program as well as teaching and advising at graduate and undergraduate levels. Preference will be given those with documented research capabilities. Applicants will be interviewed at the Circum-Pacific G.S.A. meeting, Send resume (including transcripts) and names of 3 referees to: Thomas W. Broadhead, Search Committee, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37991. Application deadline, January 15, 1982.

Closing date for applications is January 1, 1982.

The University of Hawaii is an equal opportunity/affirmative action employer.

EARTH SCIENCES

The Lamont-Doherty Geological Observatory of Columbia University invites scientists interested in any field of the earth sciences to apply for the following fellowships: two postdoctoral fellowships, each awarded for a period of one year (extendable to two years in special instances) beginning in September 1982 with a stipend of \$22,500 per annum. Completed applications are to be returned by January 15, 1982.

Application forms may be obtained by writing to the Director, Lamont-Doherty Geological Observatory, Palisades, New York 10564. Award announcements will be made February 26, 1982 or shortly thereafter.

The Observatory also welcomes applications from candidates for postdoctoral research associate positions in this discipline.

Geophysics. Applicants should have research and teaching interests in: (1) relations between crustal structure and basin and continental margin evolution; (2) general geophysics to include areas from among seismology, geomagnetism, gravity, electrical or heat-flow studies.

Visiting Assistant Professorship in Geology. The Department also invites applicants for a visiting assistant professor position beginning in August 1982. The position is of 1 to 3 year duration and is non-tenure track. The successful candidate will have the Ph.D. and will be responsible for teaching introductory-level courses, as well as teaching and study in the person's area of research interest. This area is unspecified. The successful applicant will be chosen on the basis of qualifications and ability to interact with researchers currently on the staff.

Applicants should send a resume, transcripts, three (3) letters of reference and an outline of teaching and research interests to: Dr. Dwight Baldwin, Jr., Chair, Geology Department, Miami University, Oxford, Ohio 45056.

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Immediate openings exist in Caracas, Venezuela for experienced geologists, geophysicists and engineers specializing in rock mechanics. Candidates should have a Master's and/or PhD degree. Bilingual (English/Spanish) candidates preferred. Primary responsibility will be the setting up of a laboratory to study the behavior of rocks and/or unconsolidated sands that contain oil.

Please submit a resume to the address below no later than December 31, 1981.

INTEVEP S.A.
750 Welch Road, Suite 204
Palo Alto, CA, 94304

Petrologist-Economic Mineralogist/University of Oklahoma. Applications are invited for a post of Postdoctoral RESEARCH FELLOW in the Department of Earth Sciences for a fixed term of up to two years. The research programme of the Isotope Geology Group in the Department includes geochronology oriented particularly towards evolution of metamorphic belts, and applications of radiogenic isotope geochemistry to petrogenetic problems and the present state and past history of the earth's mantle. Equipment available includes two solid-source mass spectrometers (Micromass 3 and IsoMass 54) for Sm-Nd, U-Pb, Rb-Sr and REE determinations and two MS10's for K-Ar and $^{39}Ar/^{40}Ar$ with supporting chemical facilities which are dedicated to these programs and to projects in oceanic isotope geochemistry. The successful applicant will be expected to initiate work in one or more of these fields and to collaborate in appropriate current projects. Salary within the range £6070-£10160 according to age, qualifications and experience. Informal enquiries may be made to Professor J. C. Braden. Further particulars and application forms (if desired) may be obtained from the Registrar, The University, Leeds LS2 9JT, UK, quoting reference number 49/20/HG. Closing date for applications 30 November 1981.

University of Leeds-Isotope Geologist. Applications are invited for a post of Postdoctoral RESEARCH FELLOW in the Department of Earth Sciences for a fixed term of up to two years. The research programme of the Isotope Geology Group in the Department includes geochronology oriented particularly towards evolution of metamorphic belts, and applications of radiogenic isotope geochemistry to petrogenetic problems and the present state and past history of the earth's mantle. Equipment available includes two solid-source mass spectrometers (Micromass 3 and IsoMass 54) for Sm-Nd, U-Pb, Rb-Sr and REE determinations and two MS10's for K-Ar and $^{39}Ar/^{40}Ar$ with supporting chemical facilities which are dedicated to these programs and to projects in oceanic isotope geochemistry. The successful applicant will be expected to initiate work in one or more of these fields and to collaborate in appropriate current projects. Salary within the range £6070-£10160 according to age, qualifications and experience. Informal enquiries may be made to Professor J. C. Braden. Further particulars and application forms (if desired) may be obtained from the Registrar, The University, Leeds LS2 9JT, UK, quoting reference number 49/20/HG. Closing date for applications 30 November 1981.

Quaternary Sedimentation and Tectonics. The Geology Department at Miami University invites applications for a position in either the field of Quaternary sedimentation (including glacial/deltaic) and tectonics or the field of geophysics. This position is to be filled at the Assistant Professor level beginning in August, 1982. The successful candidate will teach both undergraduate and graduate courses, must possess the Ph.D. degree and have documented ongoing research to be considered for the tenure track position.

Quaternary Sedimentation and Tectonics. Ideally applicants should have research and teaching interests in: (1) basin development and recent tectonics; (2) Quaternary sediment transport and depositional processes including fluvial deposition; and (3) geomorphology.

Geophysics. Applicants should have research and teaching interests in: (1) relations between crustal structure and basin and continental margin evolution; (2) general geophysics to include areas from among seismology, geomagnetism, gravity, electrical or heat-flow studies.

Visiting Assistant Professorship in Geology. The Department also invites applicants for a visiting assistant professor position beginning in August 1982. The position is of 1 to 3 year duration and is non-tenure track. The successful candidate will have the Ph.D. and will be responsible for teaching introductory-level courses, as well as teaching and study in the person's area of research interest. This area is unspecified. The successful applicant will be chosen on the basis of qualifications and ability to interact with researchers currently on the staff.

Applicants should send a resume, transcripts, three (3) letters of reference and an outline of teaching and research interests to: Dr. Dwight Baldwin, Jr., Chair, Geology Department, Miami University, Oxford, Ohio 45056.

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The Caswell Silver Distinguished Professorship in Geology THE UNIVERSITY OF NEW MEXICO

The Department of Geology of the University of New Mexico is pleased to invite nominations or applications for the Caswell Silver Distinguished Professorship in Geology. This endowed professorship shall be awarded for periods of up to two years to earth scientists of distinguished accomplishment and international reputation. The professorship may be held by scientists of all specialties of the earth sciences in the broadest sense, and the major criterion for selection is that the individual be an active, productive leader in his or her field of research. The recipient must carry out a vigorous research program while in residence at UNM. The recipient is expected to interact with the faculty and students of the Department and to provide one or more seminars, in an advanced topic of his/her choice, during each academic year. The Foundation will provide unusually advantageous remuneration commensurate with the distinguished nature of the appointment. In addition, a generous allocation for travel and operating expenses (to include secretarial support, analytical services in department laboratories, use of field vehicles, and preparation of manuscripts) will be provided.

Applications or nominations should include a detailed resume and brief statement of major research accomplishments. Applications or nominations should be forwarded to:

Rodney C. Ewing, Chairman
Department of Geology
University of New Mexico
Albuquerque, New Mexico 87131

The deadline for applications is January 1, 1982.
The Caswell Silver Foundation is an equal opportunity employer.



University of Maryland/Faculty Position. The University of Maryland invites applications from highly qualified scientist for a tenure track faculty position at the assistant or associate professor level in the Department of Meteorology. Candidates must have a Ph.D. in meteorology, physics, engineering or chemistry and have an area of specialization that will enable them to lead a research program in environmental physics and air pollution. The research activity of the candidate should complement the meteorological research of the Department and continue the strong interaction in the physical sciences across department lines. Duties will include teaching senior graduate courses related to environmental physics and air pollution and developing an active research program. Salary will be commensurate with qualifications and experience. All applicants should send curriculum vitae, a brief statement of research interests and goals, addresses and telephone numbers of three professional references to: Professor Ferdinand Baer, Chairman, Department of Meteorology, University of Maryland, College Park, MD 20742. Closing date for applications is 1 December 1981.

The University of Maryland is an equal opportunity/affirmative action employer.

Position in Reflection Seismology/Rice University, Houston, Texas. The Department of Geology plans to expand its geophysical program. Emphasis will be on reflection seismology. At this time applications are for the first of two open faculty positions. The successful applicant will help in the search and selection of the second faculty member.

Your main responsibility will be to lead our department into the area of modern reflection seismology. Your main teaching and research interests should be in the acquisition and interpretation of reflection seismic data. You should also help in developing vigorous undergraduate and graduate curricula, which are supported by the traditional strength of the Math Sciences, Physics and Electrical Engineering Departments at Rice. Enthusiasm to work with and undertake some joint projects with our geologists is essential.

Our plans are to acquire a computer system configured for high quality data processing. Substantial seed money for this facility is already in hand. Creative cooperation with the oil and geophysical industry in Houston, including a reasonable amount of consulting, is encouraged. Salary will be commensurate with qualifications and experience.

Please send your curriculum vitae, a summary of experience in seismic processing, a statement of research interests, and names of three or more references to: Dr. A. W. Bailey, Chairman, Department of Geology, Rice University, P.O. Box 1982, Houston, Texas 77001. Application deadline—December 1, 1981.

Rice is an equal opportunity employer.

Stanford University. A postdoctoral or research associate appointment is available in the area of space plasma physics. Topics of study include data from electron beam experiments aboard the space shuttle and the behavior of low energy plasma in the magnetosphere. Resumes and names of three references should be sent to Professor P. M. Banks, Radio Science Laboratory, Department of Electrical Engineering, Stanford University, Stanford, CA 94305.

Stanford University is an equal opportunity employer.

University of Wisconsin-River Falls: Structural Geologist/Geophysicist. Applications are invited for a tenure track position in Geology. Preference will be given to those candidates with emphasis in structural geology or general geophysics. However, other emphases will also be considered. The Ph.D. is required, and a desire to teach is essential. Academic rank and salary are dependent upon experience of the individual. Course responsibilities will include physical geology lecture and laboratory, structural geology, and other upper division course commensurate with background. Training candidates should send a letter of application, resume, and three letters of recommendation to: Professor Samuel F. Huffman, Chairman, Department of Plant and Earth Sciences, University of Wisconsin-River Falls, River Falls, Wisconsin 54022, (715) 425-3346. The University of Wisconsin-River Falls is an affirmative action, equal opportunity employer. Final date for receipt of applications is January 15, 1982.

Instrumental Analyst/Staff Research Associate III. Job # 81-08-23. Oversee computer-automated wavelength dispersive XRF spectrometer. Minimum qualifications: two years analytical experience or equivalent academic background, preferably but not necessarily with XRF or NOVA computer. Duties include: maintenance and repair of equipment; software development in FORTRAN for on-line minicomputer; participation in design and execution of strategies for analyzing trace metals in geological materials; and instruction of users. After first year, opportunity exists for personal research at time permits. Applicants should list equipment and applications with which they're experienced, and responsibilities therewith. Salary \$1765/month. Apply to Personnel Office, University of Maryland, College Park, MD 20742. Closing date for applications is 1 December 1981.

The University of Maryland is an equal opportunity/affirmative action employer.

Field Research Positions. The Exploration Research Laboratory of the Colorado School of Mines may have openings for a field party manager and/or an assistant field party manager on or about January 1, 1982. Position level will be negotiated based on qualification. This position involves, principally, seismic data acquisition but the person may participate in a wide range of field activities including resistivity, gravity and magnetics, etc. This is an opportunity to participate with a large geophysical research and development group. Specific responsibilities include planning and coordination of field work, training of crew members, and supervision of pre-processing. The position is most challenging and offers wide scope for initiation and acceptance of responsibility. Interaction with industry professionals, ERL staff, and faculty members of the Department of Geophysics is required. It is a position for growth, and challenge. A bachelors or masters degree is required for each of the positions. Field crew experience would be helpful. Ability to direct subordinates, interface with diverse groups, and communicate results is essential. Extensive field time is required for the Assistant Field Manager. Significant field time is required for the Manager. Schedules are not firm and are subject to research commitments and research time frames. Typical academic environment fringe benefits are available. If interested in further details or in submitting an application, contact Dr. James K. Applegate, Director, Exploration Research Laboratory, Colorado School of Mines, Golden, Colorado 80401.

The Colorado School of Mines is an affirmative action/equal opportunity employer.

Groundwater Hydrologist. The Minnesota Department of Natural Resources, Division of Waters has a vacancy at the Principal Hydrologist level for an experienced groundwater hydrologist to provide leadership for a program of ground water studies and monitoring to support State Water allocation decisions and to provide quantitative assessments for planning and management purposes. Address inquiries and requests for application forms to: Sarah P. Tuford, DNR-Division of Waters, Third Floor Space Center Building, 444 Lafayette Road, St. Paul, Minnesota, 55101. Present salary range: \$23,323 to \$31,132 annually, subject to revision in the near future.

University of South Florida. 3 New Faculty Positions in the Department of Marine Science: The Department of Marine Science at the University of South Florida, St. Petersburg, announces the establishment of three new faculty positions beginning in September 1982. Applications from persons in the following specialties are especially encouraged:

Microbial ecology, marine ichthyology, carbonates petrology/stable isotope paleoclimatology, and physical oceanography.

Rank and salary will depend upon professional experience and accomplishment. The minimum stipend for Professor is \$30,000; Associate Professor, \$22,000; and assistant professor, \$20,000. The nine-month positions are fully State supported and tenure earning. Duties will involve approximately 75% research and 25% teaching. Applicants must have the Ph.D. in fields appropriate to their specialties and promising records of research accomplishment. The closing date for the receipt of applications is January 31, 1982.

Applicants should send resumes with three references to: Chairman, Department of Marine Science, University of South Florida, 140 Seventh Avenue South, St. Petersburg, FL 33701.

The University of Colorado is an affirmative action/equal opportunity employer. Final date for receipt of applications is January 15, 1982.

POSTDOCTORAL FELLOWSHIP

The Naval Postgraduate School, Monterey, CA.

We are seeking a recent doctoral graduate with an interest in geomagnetism and some background in geophysical instrumentation and computer data analysis. The candidate will be expected to participate in an ongoing experimental program of sea floor magnetic measurements using the School's research vessel and remote land based station. Stipend competitive with current practice. For further information, contact Prof. O. Heinz, Dept. of Physics, Naval Postgraduate School, Monterey, CA, 93940, or call (408) 646-2118.

NPS is an equal opportunity/affirmative action employer.

Jere H. Lipp, Chair
Department of Geology
University of California
Davis, California 95616.

Faculty Positions: The University of Iowa.

The Department of Physics and Astronomy anticipates one or two openings for tenure-track faculty in August 1982. One or more visiting professorships, at any rank, are also expected to be available. Preference will be given to candidates with research activity in the following experimental and theoretical areas: astronomy, astrophysics, atomic physics, condensed matter physics, elementary particle physics, nuclear physics, plasma physics, and space physics. The positions involve undergraduate and graduate teaching, guidance of research students, and personal research. Interested persons should send a resume, a statement of research interests, and the names of three professional references to Search Committee, Department of Physics and Astronomy, The University of Iowa, Iowa City, IA 52242.

The University of Iowa is an equal opportunity/affirmative action employer.

Geophysical Fluid Dynamicist/Physical Geographer. Applications are solicited for a junior faculty position in ocean physics or dynamics to begin in the academic year 1982-83. Areas of interest to the Department include analytical, numerical and laboratory modeling of physical processes and phenomena in the sea.

Yale University is an equal opportunity/affirmative action employer and encourages women and members of minority groups to compete for this position. Curriculum vitae, publications and the names of three or more referees should be sent by 31 December 1981 to Robert B. Gordon, Chairman, Department of Geology and Geophysics, P.O. Box 656, New Haven, CT 06511.

The University of Iowa is an equal opportunity/affirmative action employer.

Geophysical Fluid Dynamicist/Physical Geographer. Applications are solicited for a junior faculty position in ocean physics or dynamics to begin in the academic year 1982-83. Areas of interest to the Department include analytical, numerical and laboratory modeling of physical processes and phenomena in the sea.

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The University of Iowa is an equal opportunity/affirmative action employer.

Engineering Geologist/Geophysicist.

The Department of Geological Sciences, University of Saskatchewan, has one vacant tenurable position in engineering geology/geophysics. Applicants should be qualified to teach undergraduate and graduate courses and to conduct research in engineering geology. A background in structural geology may be appropriate. Well-equipped facilities are available for research in rock mechanics, fluid flow through porous media, acoustic, and electrical properties of rocks, and permafrost. Good opportunities exist for joint research with qualifications and experience. Send applications, detailed personal resume including the names of at least three referees, and other supporting data to Dr. W.G.E. Caldwell, Head, Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0W0.

Please note: until November 15, 1981 consideration will be given only to applicants who are citizens or landed immigrants, after that date all applications will be considered.

The University of Alabama is an equal opportunity/affirmative action employer.

Position 1—Structural Geologist.

Positions 2 & 3—two from following interests: Hydrogeology, applied geophysics, low temperature geochemistry, economic geology/ore deposits, coal petrology, paleontology, and physical sedimentology.

Closing date: Jan. 15, 1982. Send resume, transcripts, and three letters of reference to: Dr. W. Gary Hook, Acting Chairman, Department of Geology, The University of Alabama, Box 1945, University, AL 35488.

The University of Alabama is an equal opportunity/affirmative action employer.

Faculty Positions: Environmental Engineering.

Beginning January or September 1982. The position requires undergraduate and graduate teaching and sponsored research activities in the area of water quality control and water resources. An earned doctorate is required and at least one degree in civil engineering is preferred. Rank will be at the assistant professor level and salary will depend upon qualifications. Apply to: Dr. Lester A. Hoel, Chairman, Department of Civil Engineering, University of Virginia, Charlottesville, Virginia, 22901.

The University of Virginia is an affirmative action/equal opportunity employer.

An affirmative action/equal opportunity employer.

Geophysics University of Colorado

The Department of Physics, University of Colorado at Boulder, and the Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado/NOAA are currently recruiting for a tenure track faculty member, in the Department of Physics, with simultaneous appointment as a Fellow of CIRES, who will complement the Department's active role in the University's Interdepartmental Graduate Program in Geophysics. We are particularly seeking persons with experience and interest in the following specialties: Microbial ecology, marine ichthyology, carbonates petrology/stable isotope paleoclimatology, and physical oceanography.

Appointment will be at the level of assistant professor (minimum salary: \$20,000 per academic year) and is expected to start in the fall of 1982. The appointment entails full participation in the Department's undergraduate and graduate teaching programs (including offerings in the appointee's specialty), supervision of graduate students in appropriate areas, and the development of an active research program.

Candidates should send a letter of interest, a current curriculum vitae, and have three letters of reference sent no later than 1 January 1982 to:

Chairman
Department of Physics
Campus Box 390

University of Colorado
Boulder, Colorado 80309

The University of Colorado is an affirmative action/equal opportunity employer.

Virginia Polytechnic Institute and State University: Senior Research Associate.

Investigating and abundant research and publishing opportunities, including new University-owned MDS-IV seismograph system, VAX 11/780 computer. Good experience in theory and application of reflection seismology, and be interested in the application of reflection seismology to the solution of geologic problems.

Send resumes to: Dr. D. R. Wones, Department of Geological Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0461.

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